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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/594,273	07/24/2007	Tetsuzo Miki	296975USOX PCT	3412
22850	7590	11/29/2010		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER				
CROUSE, BRETT ALAN				
ART UNIT		PAPER NUMBER		
1786				
NOTIFICATION DATE		DELIVERY MODE		
11/29/2010		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/594,273

Applicant(s)

MIKI ET AL.

Examiner

Brett A. Crouse

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 September 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SI/200)
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date: _____

DETAILED ACTION

Application Status

1. This office action is in response to the amendment, filed 9 September 2010, which amends claims 1, 2, 3 and 4, and adds new claims 5-27.
2. Claims 1-27 are pending.

Response to Amendment

3. The rejection of claims 1-4 under 35 U.S.C. 102(e) as being anticipated by Qiu et al., US 7,227,027, is overcome by the amendment, filed 9 September 2010.
4. The rejection of claims 1-4 under 35 U.S.C. 102(b) as being anticipated by Kim et al., US 2004/0023060, is overcome by the amendment, filed 9 September 2010.
5. The rejection of claims 1-4 under 35 U.S.C. 102(b) as being anticipated by Suzuki et al., WO 2004/020373, is overcome by the amendment, filed 9 September 2010.
6. The rejection of claims 1-4 under 35 U.S.C. 102(b) as being anticipated by Sato et al., JP 2002-008860, is overcome by the amendment, filed 9 September 2010.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 13, 14, 15, 16, 17, 18, 19, 20, 22, 24, 25, 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Qiu et al., US 7,227,027.

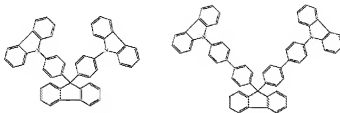
Qiu teaches:

Column 5, line 14 through column 6, line 23, formula (III), teaches carbazole derivatives of formula (III). Column 6, lines 3-5, teach that R¹ through R¹⁶ are independently selected from hydrogen, alkyl, alkoxy, aromatic, fluoroalkyl, halogen and cyanic groups. Column 6, lines 9-29, teach the spiro group can be further substituted with alkyl groups, aromatic groups and halogens.

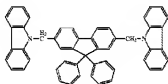
Column 6, lines 24-29, teach an electroluminescent device comprising the compound of formula (III) and a triplet emissive dopant in the emissive layer.

Columns 13/14, provide exemplified compounds of formula (III). Compounds (28) and (29) are shown below.

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Columns 9/10, provide exemplified compounds of formula (III). Compound (14) is shown below.



Qiu does not provide an example compound comprising a substituted spiro group.

Qiu is silent as to the definition of the spiro group.

Qui does not provide a compound having three or four carbazole groups.

It would have been obvious to one of ordinary skill in the art to provide the spiro group of formula (III) of Qiu with the recited substituents and to use the resulting compounds in the device of Qiu with the expectation that the compounds within the scope of formula (III) would function suitably in the device of Qiu as taught by Qiu.

It would have been obvious to one of ordinary skill in the art to use the substituted or unsubstituted C6 to C50 aromatic group for the spiro group of formula (III) based on the similar/parallel use of phenyl groups for the aromatic groups of formula (III) with the expectation that aromatic groups finding utility at other locations in the compound would provide similar utility as the spiro group.

It would have been obvious to one of ordinary skill in the art to make a fluorene derivative compound having 3 or 4 carbazole - Ar substituents and use the compound in

the device of Qui with the expectation that a compound formed as a composite of the exemplified groups of Qiu and attachment points of Qiu would find similar utility to the groups of formula (III) of Qiu due to the similar selection of groups and skeletal structure.

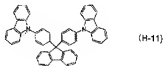
9. Claims 1, 2, 3, 4, 5, 6, 7, 8, 9, 13, 16, 17, 18, 19, 20, 24 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al., JP 2002-008860.

Sato teaches:

Claims 1, 3, 4, 5, teach a composition of a carbazole derivative of formulae (II) and (II') in combination with metal containing compounds in the light emitting layer of an electroluminescent device.

Paragraph [0030], teaches the substituents represented by $R^7 - R^{18}$ can be independently selected from groups including hydrogen, halogen, alkyl, aralkyl, cyano, aromatic hydrocarbons and aromatic heterocycles.

Paragraph [0049], provides exemplified compounds of formula (II'). Attention is directed to compound (H-11), shown below.



Paragraph [0048], compound (H-3), provides an example compound in which the phenyl groups of formula (II') are substituted with methyl (alkyl) groups.

Paragraphs [0056]-[0057], provide exemplified metal containing compounds of formula (IV).

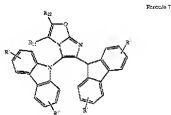
Paragraphs [0083], [0091], teach as part of the working examples the inclusion of phosphorescent dopants into a light emitting layer which further comprises a compound of the formula (II).

10. Claims 1, 2, 3, 4, 5, 6, 7, 8, 10, 12, 17, 18, 19, 21 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al., US 2005/0074632.

Lee teaches:

Paragraphs [0007]-[0013], formula 1, teach an imidazole derivative useful as a host material for a fluorescent or phosphorescent dopant of the light emitting layer of an electroluminescent device. Paragraph [0011], teaches the substituents R_1 through R_{12} can be independently selected from groups including halogens, cyano, nitro, and substituted or unsubstituted alkyl, alkoxy, and aryl groups.

Paragraph [0032], formula 7, teaches an imidazole derivative comprising a substituted or unsubstituted carbazole and substituted or unsubstituted fluorene group. Formula 7 is reproduced below.



Paragraphs [0052]-[0060], figure 1, teach electroluminescent device structure and suitable component materials.

Lee does not provide an example compound comprising the recited substituents upon the imidazole ring.

It would have been obvious to one of ordinary skill in the art to provide the imidazole ring of Lee with one or more of the substituents of Lee and use the resulting compound in the device of Lee with the expectation that the compound would provide the device with suitable light emitting host properties as suggested by Lee.

Response to Arguments

11. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Applicant argues that the references do not anticipate the claims as amended. The rejections under 35 USC 102 are withdrawn. The Qiu and Sato references are applied under 35 USC 103 in this office action. Additional sections of the disclosure of the references are added to the rejections above to point out the teachings of the references with regard to the newly added limitations of the instant claims.

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brett A. Crouse whose telephone number is (571)-272-6494. The examiner can normally be reached on Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, D. Lawrence Tarazano can be reached on 571-272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/B. A. C./
Examiner, Art Unit 1786

/D. Lawrence Tarazano/
Supervisory Patent Examiner, Art Unit 1786